



CONSERVATION DISTRICT USE APPLICATION (CDUA) STATE MARINE WATERS

File No:

Acceptance Date:

180-Day Expiration Date:

Assigned Planner:

for DLNR Use

PROJECT NAME: Mariculture Site Capacity Increase, Unualoha Point

Conservation District Subzone: Resource

Identified Land Use: D-1 Aquaculture

(Identified Land Uses are found in Hawai'i Administrative Rules (HAR) §13-5-22 through §13-5-25)

Project Address: 74-429 Kealakehe Parkway
Kailua-Kona, HI 96740

Total Area of Proposed Use: 90 acres (as currently permitted)

Total Area of Proposed Exclusive Use: 0 acres

Center Point of Leased Area: Latitude: 19° 44' 34"

Longitude: 156° 3' 42"

Nearest Tax Map Key(s): 7-3-43 Seaward

Ahupua'a: Kalaoa 1st - 4th

District: North Kona

County: Hawaii

Island: Hawaii

Proposed Commencement Date: December 2014

Proposed Completion Date: May 2016

Estimated Project Cost: \$2 million

ATTACHMENTS

\$ 2,500 Application Fee (*ref §13-5-32 through 34*)

\$ _____ Public Hearing Fee (*if applicable; \$250 plus publication costs; ref §13-5-40*)

☒ 20 copies of CDUA (*5 hard + 15 hard or digital copies*)

☐ Management Plan *or* Comprehensive Management Plan (*ref §13-5-39 and §13-5 Exhibit 3*)

☒ Draft / Final Environmental Assessment *or* Draft / Final Environmental Impact Statement

REQUIRED SIGNATURES

Applicant

Name / Agency: Blue Ocean Mariculture
Street Address: 74-429 Kealakehe Parkway
Kailua-Kona, HI 96740

Contact Person & Title: Jennica Lowell, Research Manager

Phone: (808) 557 2233

Fax:

Email: jennica.lowell@bofish.com

Interest in Property:

Signature: _____

Date: 6/5/14

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

Agent (none)

Agency:

Contact Person & Title:

Mailing Address:

Phone:

Fax:

Email:

Signature: _____

Date:

State of Hawai'i

Chairperson, Board of Land and Natural Resources

State of Hawaii

Department of Land and Natural Resources

P.O. Box 621

Honolulu, Hawaii 96809-0621

Signature _____

Date:

PROPOSED USE

Please provide an executive summary of the proposed land use. Attach any site plans, landscaping plans, photographs, maps, and construction plans as needed.

Blue Ocean Mariculture (Blue Ocean) proposes to increase the production capacity of its existing open ocean mariculture site off Unualoha Point, Hawaii (the Farm Site). The existing Farm Site is located approximately 1 km North of Keahole Point and 600 meters West of Unualoha Point on the island of Hawaii (see Figure 1). The proposed action will enable an increase in whole fish production from 450 T to approximately 1,100 T per year by 2017. No other changes are proposed, including no changes to the Farm Site's mariculture lease location or dimensions, permitted fish species, or environmental monitoring program, which is designed for the proposed production levels. In addition, no changes are proposed to the existing CDUP Management Plan for the Farm Site (the Management Plan is not submitted with this CDUA).

Specifically, Blue Ocean proposes to expand the growing volume capacity of its existing mariculture operation from the current CDUP limit of 24,000 m³ to a new CDUP limit of 64,000 m³. In addition to the increase in overall capacity, a corresponding change in the maximum number of allowed net pens from 5 to 8, and in the maximum size of individual net pens from 7,000 m³ to 8,000 m³ is proposed. A small modification (extension) of the existing mooring grid system is required to implement the capacity changes (see Figure 2). No changes are proposed in the types of net pens currently permitted for use at the Farm Site.

Extensive monitoring of water quality and benthic parameters under the existing NPDES permit over the past 8 years indicates no significant environmental impacts. Testing has been conducted for important water quality parameters (e.g., nitrogen and phosphorus), benthic parameters (e.g., total organic carbon, oxidation reduction potential), and for whole effluent toxicity. The estimated nutrient loads from the proposed action are well within the nutrient assimilation capacities of the local water column and benthos. The environmental monitoring requirements and limits specified in the existing NPDES permit will continue under the proposed action.

The proposed use has several economic and social benefits to the State of Hawaii, all of which can be achieved while continuing to protect the State's natural and cultural resources. The proposed use will:

- Support employment growth and economic development in West Hawaii.
- Increase utilization of Hawaii's marine resources in an environmentally safe manner.
- Increase State of Hawaii revenue by growing lease, permit and consumption fees.
- Advance Hawaii towards its stated food security goals by increasing the amount of sustainably grown seafood in State waters.
- Advance Hawaii towards its economic diversity goals by increasing exports of locally produced seafood.
- Maintain Hawaii's position as a leader in the global open ocean aquaculture industry.

Figure 1: Farm Site Location

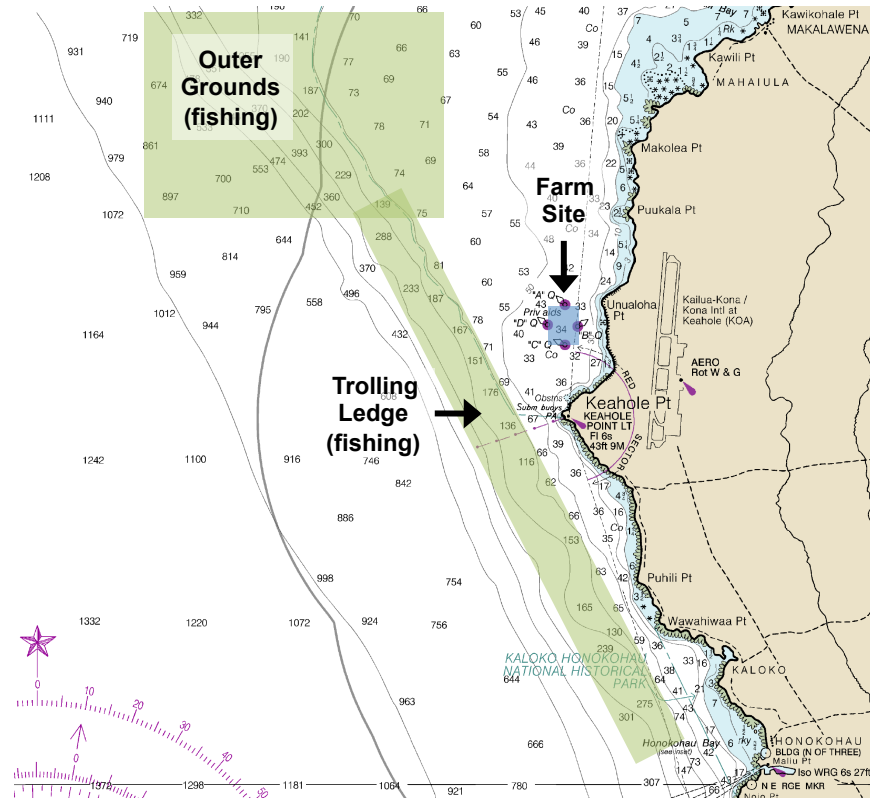
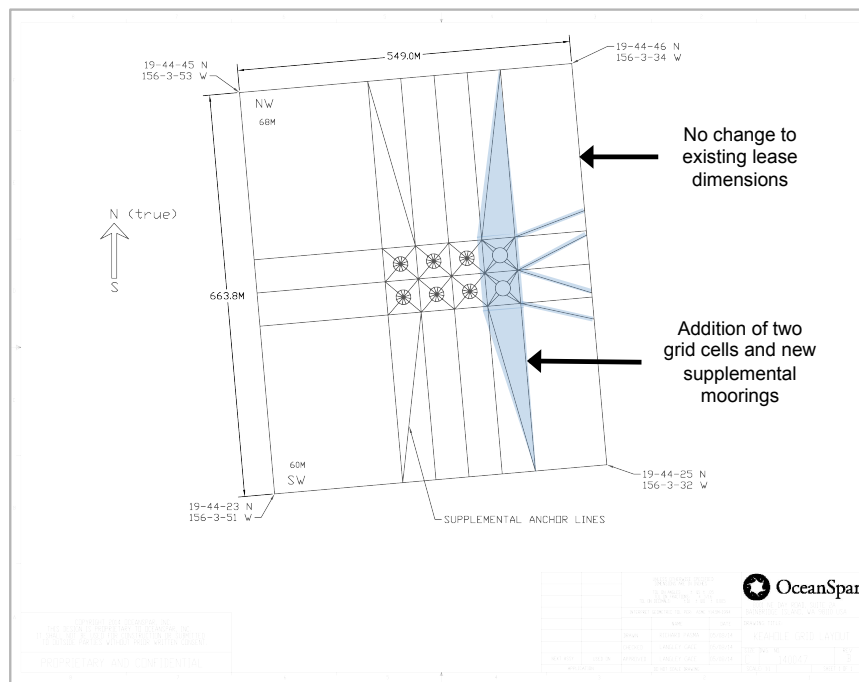


Figure 2: Modified Mooring Array (8 Cells)



CHAPTER 190D REQUIREMENTS

Pursuant to §190D-11, Hawai'i Revised Statutes (HRS), any person desiring to lease state marine waters shall submit to the board an application which contains the following:

1. **An environmental assessment or, if required, an environmental impact statement which shall be prepared and accepted in compliance with the rules adopted under chapter 343.**

A Draft Environmental Assessment was prepared and submitted with this CDUA.

2. **A description of the location and boundaries of the state marine waters to be used and a description of the nature of the use desired.**

The Farm Site is situated inside the boundaries of the existing 90 acre mariculture lease. The lease area is a rectangle with dimensions of 1,800 ft (East-West) and 2,178 ft (North-South), and a center point located at latitude 19° 44' 34" N and longitude 156° 3' 42" W. No changes to the mariculture lease location, dimensions or terms are proposed. The Farm Site will continue to be used to cultivate marine finfish, including Kahala (*Seriola rivoliana*) and Moi (*Polydactylus sexfilis*).

3. **A statement of the reasons for selecting the proposed location.**

The proposal is for a capacity increase within the existing farm location.

4. **A description of the activities to be conducted, including a specification as to whether such activities are commercial or noncommercial, a timetable for construction, deployment, and operation of facilities, and planned levels of production.**

The basic activity at the Farm Site is, and will continue to be, commercial production of marine finfish for harvest. This includes stocking of small fish (hatchery-raised fingerlings) multiple times per year. Standard animal husbandry practices such as feeding, cleaning and maintenance are performed daily. Harvesting of mature fish is conducted several times per week. The proposed action calls for the installation of new net pens to increase the production capacity of the Farm Site. Individual net pen installation requires 2-3 days and net pens will be installed and stocked sequentially over 18 months as fish biomass is increased. Upon full implementation (May 2016), the Farm Site will have the capacity to produce approximately 1,100 T of marine finfish per year.

5. **A statement on the extent to which the proposed activities will interfere with the use of the state marine waters for the purposes of navigation, fishing, and public recreation.**

The state marine waters at the Farm Site are not currently used for fishing or public recreation, although tour and charter fishing boats occasionally transit the Farm Site. Blue Ocean discourages anchoring and recreational diving at the Farm Site due to safety concerns such as recreational diver proximity to Blue Ocean workboats, Blue Ocean diver proximity to tour or fishing boats, and the risk of boat anchor entanglement with net pen moorings or anchors. The proposed activities will not increase the area of state marine waters used by the Farm Site or diminish tour and charter boat ability to transit the Farm Site.

6. A description of any enclosure, fences, stakes, buoys, or monuments proposed to mark off the desired area.

All surface structures, including a feed vessel and net pens with a permanent surface structure are marked with Class C navigation lights (amber or yellow flashing, visible up to one nautical mile) as required by the U.S. Coast Guard.

7. An initial description of current users (military, governmental, commercial, recreational, and cultural) and their uses of the state marine waters requested for lease, including any practitioners of traditional and customary Hawaiian rights.

The current user of the existing mariculture lease area is Blue Ocean, which cultivates marine finfish at the Farm Site situated within the lease. Recreational fishing and tour boats occasionally transit the lease area. A cultural assessment was conducted in 2002 as part of the original application for the mariculture lease. The study found no operating ko'a or other cultural uses of the lease area.

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (*ref §13-5-30 (c)*):

1. **The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (*ref §13-5-1*) How is the proposed land use consistent with the purpose of the conservation district?**

Aquaculture, including open ocean aquaculture in state marine waters, is a permitted use in a Resource subzone within the Conservation District. The environmental monitoring and management plans used at the Farm Site (and continuing under the proposed action) enable the Conservation District to conserve, protect and preserve the important natural and cultural resources of the State.

2. **How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (*ref §13-5-11 through §13-5-15*)**

Aquaculture, including open ocean aquaculture, is a permitted use in a Resource subzone and, when conducted under approved Conservation District management plans, is consistent with the stated objective of the Resource subzone, “to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.”

3. **Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled “Coastal Zone Management” (*see 205A objectives on p. 8*).**

Recreational resources. The proposed use marginally restricts recreational opportunities at the Farm Site by requesting no anchoring or diving at the Farm Site, for safety and security reasons. Recreational boat transit, and troll / drift fishing is not restricted, and no other recreational uses have been identified.

Historical resources. No historic resources have been identified at the Farm Site. Blue Ocean continues to monitor the Farm Site under its Historic Resource Management Plan.

Scenic and open space resources. The mooring system and net pens in the proposed use are mostly submerged and are not visible from the nearest shoreline public recreation areas to the North or South. The Farm Site is somewhat noticeable at a distance from the residential areas up slope Hualalai mountain.

Coastal ecosystems. The distance (600+ m) and predominantly long shore currents keep Farm Site nutrients away from the coral reef areas along Makako Bay and Unualoha Point. Detailed environmental monitoring is conducted and reported to State and Federal agencies to confirm that the proposed use will not significantly impact reefs or other coastal ecosystems.

Economic uses. The project will increase local employment in West Hawaii, increase private expenditures on local services, and increase the availability of locally produced seafood.

Coastal hazards. The proposed use will not impact coastal hazards.

Managing development. The proposed use will not impact the development review process.

Public participation. The proposed use will not impact public participation in coastal management.

Beach protection. The proposed use will not impact beach protection.

Marine resources. The proposed use, together with its associated management plans, advances the environmentally safe development of Hawaii's marine resources.

4. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The Farm Site has been in continuous operation for eight years and analysis of the environmental monitoring data accumulated over that period indicates no significant impact on natural resources such as local water quality or the benthic environment. Nutrient loads to the water column and benthos from the proposed increase in production were assessed and determined not to result in a significant environmental impact on natural resources. The deep waters and strong mixing ocean currents in the area of the Farm Site create a nutrient assimilation capacity significantly greater than the nutrients generated under the proposed action. Detailed environmental monitoring will continue under the proposed action.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

Open ocean net pens are the primary structures in the proposed use. The maximum number of net pens will increase from 5 to 8, and their size and style is consistent with the current land use and existing net pens. The Farm Site is located directly offshore of the NELHA and Kona International Airport facilities, which do not provide direct shoreline access. The Farm Site profile is low and consistent with the marine environment (e.g., boats). The Farm Site is not visible from the nearest public shore recreation areas at Kekaha Kai State Park (to the North) and Wawaloli Park (to the South).

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

The existing physical and environmental aspects of the area are largely preserved. The Farm Site occupies a small fraction of the existing 90 acre lease surface area and the vast majority of the net pen structures is submerged.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

Not applicable.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed use will not be materially detrimental to public health, safety or welfare. With the exception of occasional fishing or tour boat transits, there is very little public interaction with the Farm Site. All objects on the surface are appropriately lighted for safe navigation through the Farm Site. The increased production associated with the proposed action will help advance Hawaii towards its stated goals related to economic development and increased food security.

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups.

Please provide the identity and scope of cultural, historical and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

The existing Farm Site and mariculture lease is located in water depths averaging 60 m and the area has no known historical or cultural resources. The only traditional and customary native Hawaiian rights identified are access for fishing. The only fishing resource utilized in the area of the Farm Site is a small troll and drift ‘Opelu (*Decapterus macarellus*) fishery.

Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

Traditional and customary native Hawaiian rights regarding fishing will not be impacted by the proposed capacity expansion. Troll and drift fishing of ‘Opelu will continue under the proposed capacity increase. Blue Ocean will continue to work with the ‘Opelu fishers operating in the area to ensure safety around the Farm Site infrastructure.

What feasible action, if any, could be taken by the BLNR in regards to your application to reasonably protect native Hawaiian rights?

No action by BLNR is required, the proposed use will not impact native Hawaiian rights.

REQUIREMENTS APPLICABLE TO MARICULTURE FACILITIES

Proposed Species to be cultivated:	<i>Seriola rivoliana</i> , <i>Polydactylus sexfilis</i> , <i>Seriola dumerili</i> , <i>Coryphaena hippurus</i> , <i>Caranx ignobilis</i> (no change to currently permitted species)
Total Number of Proposed Cages:	Up to 8
Volume of Proposed Cages:	Up to 8,000 m ³
Total Capacity of Proposed Cages:	Up to 64,000 m ³
Describe type of cages to be used:	Combination of SeaStation single rim, SeaStation double rim, HDPE surface pen

Please provide a summary of facility operations (i.e. species specific information including but not limited to biology; breeding, stocking, and harvesting; feeding methods; known diseases and treatment methods; maintenance and cleaning methods; and amount of wild brood stock needed).

Blue Ocean currently produces fingerlings of the species *Seriola rivoliana* and *Polydactylus sexfilis* at its hatchery facility located in the NELHA aquaculture park. Eggs are collected from brood fish housed at the facility and larval runs are conducted over 60-90 day periods. Fingerlings (at approximately 20 g) are transferred offshore to net pens at the Farm Site for growout. Blue Ocean maintains a stock of 40-60 brood fish for each species. All brood fish are wild, there is no selective breeding program.

Once offshore, fish are fed a high quality, dry pellet diet 5-7 days per week. The primary delivery method is to entrain the feed in seawater and pump it into the net pen. The fish are aggressive feeders and feed events are observed through cameras mounted inside the net pens or by divers positioned just outside the net pen to minimize the amount of wasted feed.

The offshore fish inventory can be subject to common diseases such as bacterial infections or ectoparasite infections. Confirmed bacterial infections are rare, and are treated with FDA-approved medications under protocols managed by U.S. Fish & Wildlife Service. There have been no bacterial infections over the past 3 years. Ectoparasite infections are more common, and the parasites are removed from the fish through a hydrogen peroxide bath, also delivered under FDA and U.S. Fish & Wildlife guidelines. Blue Ocean closely monitors and reports water quality parameters associated with these treatments.

Net pen moorings and infrastructure are regularly inspected and maintained for wear and security. Different types of biofouling can accumulate on net pens depending on the time of year. Biofouling is regularly removed using high pressure washers and other mechanical cleaning equipment. No chemicals or copper are used to remove biofouling or limit its growth.

Once they have reached harvest size, fish are harvested for sale. Groups of fish are crowded into a reduced volume and pumped onto the harvest vessel. Fish are immediately placed on ice to reduce temperature. Harvests are typically conducted once or twice per week. Harvested fish are

returned to shore and delivered to a local processor for cleaning, packing and shipping.

Describe the environment at the project site, including the benthos and any coral reefs. Include marine life surveys. Locate and identify threatened and /or endangered species.

Seawater at the Farm Site is generally characterized by tropical oceanic conditions with low levels of nutrients, stable salinity and very good visibility. The local hydrology is the dominating feature of the Farm Site. Ocean currents in the area are strong and mixed in both direction and speed. The dynamic current environment and 60 m depths create a very high seawater replenishment rate for the Farm Site. The benthos is flat with no natural structure and consists of sand 1-6 ft deep atop a solid basalt substrate. While there are no major coral communities in the immediate area of the Farm Site, coral communities exist to the East along the shoreline of Makako Bay to Unualoha Point (see Figure 3).

Common fish populations at the Farm Site include Ulua (*Caranx ignobilis*), ‘Opelu (*Decapterus macarellus*) and Akule (*Selar crumenophthalmus*). Bottlenose dolphins (*Tursiops truncatus*) are frequently observed near the Farm Site but Spinner dolphins (*Stenella longirostris*) are rarely observed. A variety of sharks species are occasionally observed near the Farm Site, including Black Tip (*Carcharhinus limbatus*), Tiger (*Galeocerdo cuvier*), Sandbar (*Carcharhinus plumbeus*), and Glapagos (*Carcharhinus galapagensis*). Endangered Humpback whales (*Megaptera novaeangliae*) occasionally transit the Farm Site in winter months and Monk seals (*Monachus schauinslandi*) rarely visit the Farm Site. Turtles have not been observed.

Discuss the applicant's related expertise, research, planning efforts, similar projects completed or participated in and other related projects previously or currently undertaken that aid in the conduct of the proposed project. Provide relevant project results, if applicable.

Blue Ocean has successfully operated the Farm Site for the past 4 years, producing over 1,000 metric tons of high quality marine finfish through its hatchery and growout facilities. The Blue Ocean team has successfully installed mooring systems and open ocean net pens at this location and others around the world.

List each proposed structure, project element and use. Indicate the area required for each individual structure. Indicate the duration for each structure, project element or use. Provide an overall site plan that shows the location of the structures or elements of the proposed uses in relation to the surrounding environment.

The Farm Site is currently operating 5 net pen structures. One net pen is individually moored inside the mariculture lease area, and the remaining net pens are moored inside the cells of a 2 x 3 grid-type mooring array. Each mooring grid cell measures 50 m x 50 m. The proposed use calls for the addition of 2 mooring grid cells to Eastern end of the mooring array (see Figure 2).

The Farm Site is currently permitted to operate three net pen designs: the SeaStation™ 7000 DR and 3100 FLIP (see Figure 4) and a standard HDPE surface pen (see Figure 5). Blue Ocean has successfully produced fish in all three net pen types.

Figure 3: Bottom Composition

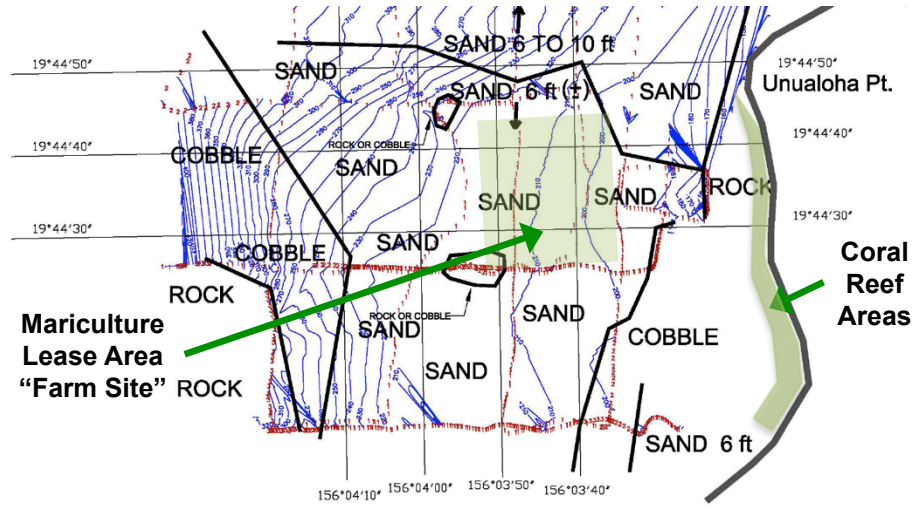


Figure 4: SeaStation Net Pens

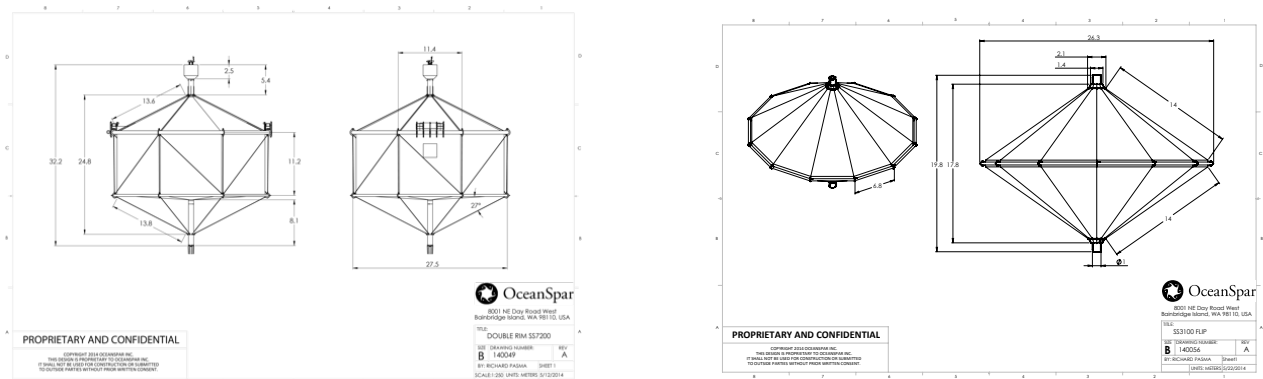


Figure 5: HDPE Surface Net Pen



CHAPTER 205A, COASTAL ZONE REQUIREMENTS

Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

- **Recreational resources:** Provide coastal recreational opportunities accessible to the public.
- **Historic resources:** Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.
- **Scenic and open space resources:** Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- **Coastal ecosystems:** Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.
- **Economic uses:** Provide public or private facilities and improvements important to the State's economy in suitable locations.
- **Coastal hazards:** Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.
- **Managing development:** Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
- **Public participation:** Stimulate public awareness, education, and participation in coastal management.
- **Beach protection:** Protect beaches for public use and recreation.
- **Marine resources:** Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

MANAGEMENT PLAN REQUIREMENTS

Aquaculture facilities require that a Management Plan be approved by the Board of Land and Natural Resources. The Management Plan can be processed concurrently with the Conservation District Use Application, and must be consistent with the Hawaii Administrative Rules Chapter 13-5, Exhibit 3.

Pursuant to the above, Management Plans should include:

- Project location (e.g., island map, location map, site plan (drawn to scale))
- Natural resource assessment including descriptive information about the natural resources in the project vicinity such as biological, archaeological, cultural, geological, coastal, recreational, and scenic resources, where applicable. The presence of any threatened or endangered species shall be disclosed.
- Natural hazard assessment including descriptive information of erosion, flooding, slope, tsunami, and volcanic hazards, where applicable.
- A description of best management practices used during project construction and implementation (e.g., mitigation measures).
- A description of the best management practices to be used during the lifetime of the project (e.g., mitigation measures).
- A description of the conservation methods and applications to be used in the short term and long term (e.g., mitigation measures).
- Description of existing uses and facilities, if any.
- Description of proposed facilities and uses, including phases, if applicable.
- Project schedule including description of project sequencing from project construction to project completion and on-going maintenance plans, including a description and timing of natural resource monitoring and maintenance plans.
- A description of the annual reporting requirements.
- Any other information or data, as required by the department.

The natural resource monitoring and maintenance plans, and the annual reporting requirements, should include information on:

- Emergency Operations
- Water Quality
- Benthic Health
- Fish Health
- Shark Management Plan
- Marine Protected Species

Please attach the proposed Management Plan as a separate document.

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.



Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

(none)

I hereby authorize _____ to act as my representative and to bind me in all matters concerning this application.



Signature of applicant(s)